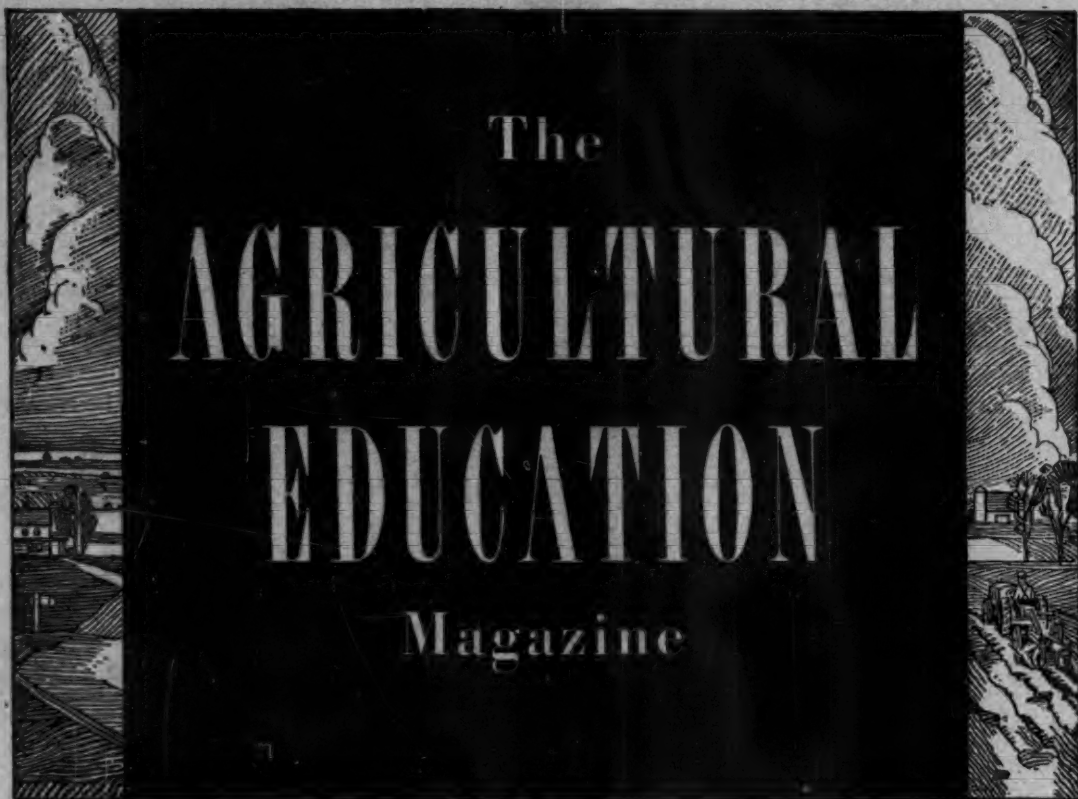


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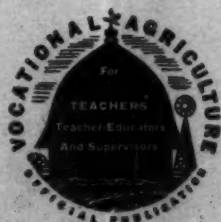
June, 1941

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*THIS country will never be a good place
for any of us to live in unless we make it
a good place for all of us to live in.*

—Theodore Roosevelt.



The Agricultural Education Magazine

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Editorial Comment

Co-ordination of General Education and Vocational Education

THE need for co-ordination of general and vocational education and for mutual understanding among leaders in these fields has long been recognized by some leaders in both fields as well as by the "rank and file." There are many indications that co-ordination and the development of mutual understandings are taking place. Occasionally, however, it appears that those engaged in general education and the vocational educators are getting farther apart. We should be concerned with the causes of lack of co-ordination wherever it may be found.

For the past 25 years leaders in vocational education have struggled for the recognition and maintenance of standards for teaching vocational subjects. These standards often did not apply to the teaching of other subjects. In achieving recognition of these standards some vocational teachers have probably given the impression that they, as vocational teachers, were "different" from the teachers of academic subjects. The more academically trained teachers and administrators, finding the vocational educators speaking a "language" which they could not understand have, in some cases, given up hope of co-ordination and have gone their own way, oblivious of developments in vocational education. Superintendents have been known to aver that they felt incompetent to supervise a teacher of agriculture. Usually the resulting lack of supervision has been unfortunate.

One of the grave mistakes which we in vocational education make is that of assuming that the things we do in our vocational programs are so different from anything being done in other fields that none of the findings which we develop would apply to these fields. A casual examination of the files of such magazines as *The Journal of Educational Research*, *The School Review*, *School and Society*, and similar publications reveals practically no articles by teachers of agriculture, home economics, trades or other vocational courses, nor articles about these programs. Our guess is that 90 percent of the writing in the field of agricultural education is published in our own magazine. Who reads it? The teachers of agriculture. What chance do the rank and file of other teachers have to become informed about vocational agriculture?

Teachers of vocational agriculture probably participate as much or more than other teachers in conventions and conferences of their own group. But they should be equally interested in meetings of all teachers, and in making real contributions to these meetings. There is some evidence that, as teachers of agriculture, we are too preoccupied with our own problems, or that we think of ourselves as agriculturists rather than as educators. But the general educator may, as a result, forget about us or lose confidence in us. How many state teachers' associations have chosen teachers of agriculture as officers for their groups? How many editors of state educational journals invite teachers of agriculture and other leaders in agricultural education to write for their publications? There are too many meetings on vital problems such as vocational guidance, adult education, and curriculum-building—including national meetings—in which workers in agricultural education and other vocational education fields are conspicuous by their absence.

All of this may, in part, explain why it is that when a state-wide or nationwide study is launched vocational educators are left out of the picture. For example, the National Survey of Secondary Education conducted a decade ago was carried on almost wholly by general educators. In 1938 the American Council of Education appointed a Commission on Teacher Education to serve for a period of five years. The Commission has an ample subsidy to carry on its program and it should produce some significant results. However, those who are working on the study are not, so far as we know, directly connected with the education of vocational teachers. There are 16 members of the commission, 11 staff members, representatives from 20 co-operating, teacher-educating institutions and 14 public school systems, 29 educators from the three states co-operating on state-wide studies, and 42 collaborators

and consultants. None of these is engaged directly in the education of teachers of vocational agriculture.

The emphasis of the commission on study of child development and omission of adult education from their list of problems would indicate that the vocational teacher, as such, does not enter into their thinking. Who is responsible for this? Probably both the general educator and the vocational educator are at fault. The preoccupation of vocational people with their own problems and the lack of contacts and experience outside their own fields are probably partly responsible for this omission.

Vocational educators have developed thru the years an *esprit de corps* and a virility in their procedures of which they can be proud. They have demonstrated ways of teaching that the more timid or tradition-bound have avoided. They have attacked their own problems without asking for much help from the educational psychologist or the curriculum expert. Perhaps if vocational educators had leaned more heavily on some of the experts in general education these same experts might now be more concerned with similar problems in vocational education. Let us cease implying that vocational education is an esoteric subject understood only by the specially anointed. Let us do our part in bringing about co-ordination and a better understanding between general and vocational education.

Implications of the Sixteenth Census

TEACHERS of agriculture are coming more and more to rely upon the United States Census as one source of data to consider in planning programs of agricultural education. A cursory examination of the first releases of the sixteenth census reveals many significant changes that have been taking place in agriculture. These changes should be considered in re-planning of local and state programs.

A change which is bringing with it many profound economic and social changes in rural life is the increase in small farms and in very large farms. From 1930 to 1940 the farms under 10 acres increased 41 percent, the greatest increase being in mining and industrial areas in which many workers have become part-time farmers. The number of farms of 1,000 acres and over increased 24.7 percent, so that now almost half of the land in farms in the United States is in farms 500 acres or more in size.

Along with these changes have come a tremendous drop in cotton acreage and declines in acreages of corn and grain crops; together with an increase in cattle, a decrease in sheep and chickens, and a marked decrease in the number of horses and mules.

Some of these changes have been more marked in certain states than in others and more pronounced in some communities than in others. Since census data will be available by counties, groups of teachers within a county can get together with others interested in planning and can make good use of these new sources of data in re-shaping their instructional programs. Reports are also available by townships, and they could be purchased by a county group or by some central agency or institution.

The significant adjustments in agriculture that are being made to changing market conditions, to control-programs, to conservation and land-use programs, and to "rurban" development should carry several implications for teachers of agriculture. Many references used in teaching are based upon conditions as they existed 10 years ago. Some teachers may be well prepared in farm enterprises which are declining, and poorly prepared in those enterprises and aspects of farming which are gaining or are coming to the forefront. The types of farming which will eventually be carried on by boys now in school may be quite different from those which prevail now, if the small farms and the large farms become increasingly more numerous.

All of these implications should provide food for thought to those engaged in agricultural education. They will bear considerable study by anyone interested in keeping agricultural education up to date.

A. K. GETMAN

Professional

R. W. GREGORY

Farm Research Narratives

Industrial Utilization of Farm Products

HENRY G. KNIGHT, Chief, Bureau of Agricultural Chemistry and Engineering,
United States Department of Agriculture

With Advisory Assistance From

R. W. GREGORY, Specialist in Agricultural Education,
U. S. Office of Education

THE industrial utilization of farm products is one of the most discussed topics in the agricultural field today. It's a subject of tremendous economic importance and may hold the key to the solution of some of our toughest farm problems.



The United States Department of Agriculture has been searching for industrial outlets for farm products in a small way for 25 or 30 years and has some rather outstanding accomplishments to its credit. Industry is now, and has been, for a number of years, utilizing farm products in considerable volume in the manufacture of industrial products like alcohol from molasses, corn, and other starchy materials; the manufacture of boxboard, building board, and paper from straws; the making of starch from potatoes and corn, cellulose from cotton linters, and paint oil from soybeans.

Great Quantities of Unused Raw Materials

But the amount of farm products used by industry compared with the total production of agricultural commodities is rather small. Our annual production of such crops as corn, wheat, cotton, and potatoes runs into high figures. We have enough unused raw materials from these

crops alone to justify extensive research looking toward wider markets for farm commodities. Hardly a year passes that we do not have a surplus of some of our major crops. One year it may be corn; another, wheat; another, cotton; and so on. In addition to these surpluses we have large quantities of by-products and

HENRY G. KNIGHT is chief, Bureau of Agricultural Chemistry and Engineering and its predecessor organization, the Bureau of Chemistry and Soils, of the United States Department of Agriculture since 1927. Dr. Knight was born in Kansas and is the son of a Pony Express rider. In his position as chief of the new bureau, he administers the four regional research laboratories recently established by Congress to search for new and wider industrial outlets for farm products. He has been director of the experiment station and dean of agriculture of the University of Wyoming, Oklahoma Agricultural College, and West Virginia University. Dr. Knight received training in chemistry and soils at the University of Wyoming, University of Chicago, University of Illinois, and Cornell University. He is an author of various published monographs on qualitative analysis, research work on potable waters, effect of alkali upon seeds, food adulterations, Wyoming forage plants, soil nitrogen, wool, poisonous plants, effect of alkali upon cement drainage experiments, digestion experiments, and soil acidity.

residues, or waste materials. For every pound of grain produced there is a by-product of one to two-and-a-half pounds of straw, stalks, and husks, which require time, labor, and soil fertility to produce. It is estimated that the grain belt produces nearly a quarter-billion tons of stalks, straws, cobs, husks, and other cereal by-products. The South

produces as by-products of the cotton crop about 18 million tons of cotton stalks and nearly two million tons of cottonseed hulls. From the sugar industry we get about a half-million tons of bagasse, while the lowly peanut adds nearly a hundred thousand tons of peanut hulls. If outlets could be found for these surplus crops and by-products that would give the farmer a fair price for his labor and investment, it would mean millions of dollars added to the annual farm income.

But don't jump to the conclusion that the discovery of methods for making some new industrial products from agricultural materials will solve the farm problem. It will not, but it will help. If, thru the results of research, we are able to work out methods that will enable industry to take more farm crops, that will certainly be a step in the right direction. But remember that these industrial products that are made from farm crops must compete with products made from something else, and the one that can be produced at the lowest cost is probably the one that will win out. For example, paper is made from cellulose; and whether it comes from wood or from, say, cornstalks depends upon relative costs. By processes now available, a ton of coniferous wood will produce about 860 pounds of chemical pulp; a ton of wheat straw, around 700 pounds; and a ton of cornstalks, approximately 640 pounds. Wood is more compact and requires less bulky digesters. The wood pulp is cleaner and easier to bleach. These and other advantages of wood make it a cheaper source of pulp. That's why most of the paper that is used today is made from wood. But a change in the economic factors involved could change this whole picture in a few years. Should the price of wood be increased or a cheaper method of gathering stalks be developed or cheaper and more efficient methods for processing stalks be discovered, the production of paper from stalks might become so promising that farmers would find it profitable to gather and sell them for that purpose.

Uses Depend on Relative Costs

Scientists of the Bureau of Agricultural Chemistry and Engineering know how to make a motor fuel from corn. We can also make it from molasses or even from artichokes. But the fuel we can make today can't compete in price with petroleum fuel. If decreasing supplies of petroleum result in a consider-



The soybean varnish on this cabin cruiser is in good condition after more than two years of service

able increase in the price of gasoline, then it might at some time in the future be economically profitable to make the fuel from corn and to pay the farmer a fair price for that corn. Remember that the farmer cannot go out and produce corn for motor fuel or sweet potatoes for starch just because he wants to. Industry must be able to pay him a fair price for the raw material he produces; otherwise it will not be a profitable venture for the farmer.

The examples cited show some of the obstacles that research must tackle. Properly conducted research may be able to solve these problems. That, at least, is what a great many people believe. There is a growing belief that research can aid the farmer a great deal by searching for new industrial outlets for farm products. Interest in this field has increased tremendously in the last six or eight years. It was about 10 years ago that research began to emphasize the utilization of farm products along with the production of them. For instance, in 1933 the Bureau of Agricultural Chemistry and Engineering established a laboratory at Ames, Iowa, to collaborate with the Iowa State College in studying the industrial possibilities of such agricultural residues or wastes as straws, stalks, cobs, husks, and hulls. We learned in this laboratory how to make molding plastics from some of these so-called waste materials. We found that we could make illuminating and heating gas from some of them, but not economically at present. We also learned how to utilize certain micro-organisms that produce harmful mold on bread for the conversion of corn sugar to valuable commercial organic acids.

Co-operative Research by Federal and State Agencies

Several years later a laboratory was set up by our Bureau in collaboration with the Bureau of Plant Industry and agricultural experiment stations of the North Central States at Urbana, Illinois, to search for new and wider industrial outlets for the soybean. This laboratory has been fairly successful. It has carried certain products developed in its research to the point where they have been taken up by industry and placed in commercial production. Some soybean oil is good for paint and varnish, but on account of its slow-drying qualities it has not been used very much in that field. Scientists in the Urbana laboratory worked out methods for treating this important oil to make it dry in a comparatively short time. As a result of this discovery, quite a bit of soybean oil is now going into the paint and varnish trade, altho the bulk of the oil and meal from the soybean crop still goes into the food and feed markets. Soybean production has increased from around eight million bushels in 1928 to more than 80 million bushels in 1939.

Scientists of our Bureau have also helped the southern farmer in an industrial way. In 1934 we collaborated with another Federal and a state agency in setting up in an old abandoned sawmill at Laurel, Mississippi, a plant for manufacturing white starch from sweet potatoes. This plan, which is now operated by a group of co-operative sweet-potato farmers, is a commercial success, having made money last year for the first time.

New Crops Introduced

When we can get it, we import around 100 million pounds of tung oil each year for use in the manufacture of paint and varnish. Practically all of it comes from China. About 10 years ago a handful of aggressive southern agriculturists got the idea that we could grow tung trees in the southern part of the United States. They tried it and were successful. It required some time for the tung orchards to become established, but tung oil production has been increasing in this country for four or five years, and it appears now that our output from the 1940-41 crop will amount to around five million pounds. Farmers during the past season received an average of \$60 a ton for tung fruit delivered at the mills. That's double the price they received last year and shows how farmers in scattered sections are beginning to profit by the production of agricultural commodities for industrial use. We have a couple of collaborative chemical laboratories in the tung oil producing areas which are doing everything they can to improve the technological conditions in that field.



Dr. Henry G. Knight examining a head of wheat preserved in crystal-clear plastic which can be made from an agricultural product

One of our scientists recently worked out an electrical apparatus for rapidly determining the amount of moisture in tung fruit in order to follow the progress of dehydration. Moisture in the fruit is of considerable economic importance because it not only adds to transportation costs, but also makes it difficult to obtain a high yield of oil from kernels that contain too much moisture.

In the Pacific Northwest we have an engineer who is trying to improve the methods of processing fiber flax. Flax can be produced with reasonable success in several sections of this country, but it has always been expensive to separate the fibers so that they could be spun and woven into fabric. If we can find a cheaper and more efficient way of doing this job, it may result in considerable quantities of this crop being produced here.

Work With Citrus Fruits

While the Bureau of Agricultural Chemistry and Engineering has been designated as the Government agency to search for new and wider industrial outlets for farm crops, it helps in other ways

as well. A few years ago we were asked to aid the citrus fruit growers in Florida and in the Rio Grande Valley of Texas. We have helped to develop new food products but so far we haven't been able to develop very many industrial non-food products from the principal citrus fruits. Formerly we worked out methods for the commercial production of citric acid and lemon oil from cull lemons in California. But that is what we call a by-product development. In order to help the Rio Grande farmers we set up a laboratory in Weslaco, Texas, and learned there, and in our citrus laboratories in Florida and California, how to pack acceptable orange and grapefruit juices. As a result of this research, grapefruit juice production has increased from about 200,000 cases in 1928 to nearly 10 million cases in 1939-40.

One of the problems encountered when we begin to think about industrial utilization of farm products, and especially of their by-products, is the cost of gathering or harvesting the raw material. For instance, sweet potatoes have been produced largely for table use; and in order to get an acceptable product without cuts and bruises, it has been necessary to use a great deal of hand labor in harvesting. We found that this freedom of blemishes was not so important when we started to produce sweet potatoes for the starch plant. What we wanted was quantity production, and in order to get that on an economic basis we needed a harvester that would dig potatoes faster and cheaper than they could be dug by hand. Our engineers are working on a sweet-potato harvester now and are getting along very well with it.

We had a similar problem when we started out to make paper from corn stalks. We could make the paper all right, but it cost too much to gather the stalks. So when we begin to think about the production of farm crops for industrial use, we mustn't forget that one of our major problems is to produce and harvest these crops so that the cost will not eat up the profits. We are working on these and many other problems in connection with the industrial utilization of farm crops.

New and Wider Outlet for Crops Being Studied

The newest venture in this industrial utilization field is the establishment of the four large Regional Research Laboratories designed especially to search for new and wider industrial outlets and markets for farm crops, particularly the surplus crops. Congress became so interested in this industrial utilization idea that it authorized an appropriation of four million dollars in 1938 and instructed the Secretary of Agriculture to establish four Regional Research Laboratories, one in each of the major farm-producing areas of the country, to search for new and wider industrial outlets and markets for farm products.

After a careful survey of the field was made, these laboratories were located at Peoria, Illinois, for the northern part of the country; New Orleans, Louisiana, for the South; Philadelphia, Pennsylvania, for the East; and Albany, California, for the West. The northern laboratory is searching for new and wider industrial outlets and markets for corn, wheat, and agricultural resi-



Delicious candy is now being made with sweet-potato starch

dues or waste. The southern laboratory is working on cotton, sweet potatoes, and peanuts; the eastern laboratory on apples, tobacco, milk products, potatoes, vegetables, animal fats and oils, hides, skins, and tanning materials; and the western laboratory on wheat, potatoes, apples, vegetables, fruits, alfalfa, and poultry products and by-products.

Three of the four laboratories have already been completed and occupied, and research is now under way at these places. The southern laboratory has not been occupied yet because of a fire that destroyed one corner of the roof just a short time before the contractor was ready to turn the building over to the Government. We expect to occupy the southern laboratory in a few weeks, so that the scientific staff, which is now housed in temporary headquarters in New Orleans, can get the research started on a constructive basis.

Many Scientists Employed

There is an average of more than 40 scientists employed at each of the laboratories and a total of more than 175 at the four. There are also about 25 of what we call subprofessional employees, plus the clerical and administrative personnel. Altogether there are more than 400 persons already at work in these laboratories, and the staffs are being enlarged all the time. The expansion will continue until there will be a total of 800 to 1,000 scientists in the four laboratories searching for industrial outlets for farm crops. This, as you can readily see, is an enormous program in a field filled with possibilities but with few milestones to guide the searchers. I can assure you, however, that these laboratories are moving as fast as it is humanly possible with their research work and that every possible effort is being made to inaugurate projects that promise to help the farmer.

On account of the size of this new farm-research program, we are able to approach the problems on a larger scale than ever before. This will be very helpful. One of the reasons why research on the utilization of farm products has moved slowly in the past is that very few of those educational institutions which do the bulk of agricultural research have had the money to carry their findings beyond the test-tube stage, which is only the first of several steps in the development of a new product. In order to shorten the gap between test-tube discoveries and commercial production, these new farm-research laboratories are establishing what the scientists call "pilot plants." These are really small commercial plants but large enough to enable the scientist to check on his laboratory findings before they are turned over to industry. It has taken our scientists, with the help of the Mississippi Agricultural Experiment Station, about five years to get as far as we have in getting the "bugs" out of the new sweet-potato starch plant, which we have looked upon largely as a pilot plant to bridge the gap between laboratory investigations and production on a commercial basis.

Industry has found the pilot-plant method of checking on the commercial development of an article a very profitable part of its research program. It has followed this method for a good many years. But pilot-plant research is far more expensive than test-tube investigation, and this is the first time the agricultural scientists have had sufficient funds to take their findings much beyond the test-tube stage.

New Laboratories Being Added

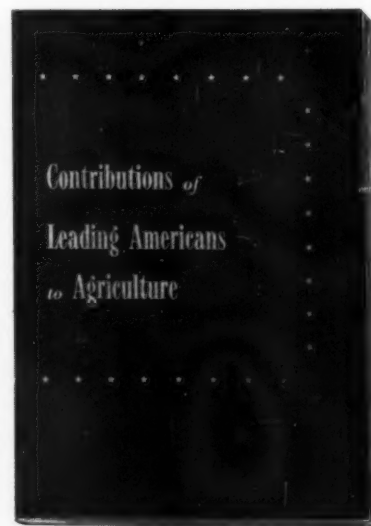
It may interest you to learn that one entire wing, or roughly one-third, of each of these four farm-research laboratories is being utilized for pilot-plant work. A

large pilot plant is now under construction at the Northern Laboratory at Peoria, Illinois, for the study of motor fuel from farm crops. A pilot plant is also being constructed at the Western Laboratory at Albany, California, for the study of the packing of frozen fruits and vegetables. The pilot-plant wing at the Eastern Laboratory at Philadelphia was just recently finished, and the wing for such work at the Southern Laboratory in New Orleans will be completed during the summer.

World conditions have changed a great deal since these laboratories were authorized in 1938, and it is a comforting thought to know that these laboratories could be turned into research institutions for national defense should the occasion demand. For example, we import most of our root starches, much of our tin, and practically all of our rubber from the East Indies. Half of our tanning materials and something like half of our linseed oil come from South America, and practically all of our tung oil comes from China. If we should lose the freedom of the seas and be cut off from the rest of the world, our export trade would probably drop below the low mark where it now stands. It is reasonable to assume that such a situation would further increase the surplus problem and make it necessary for us to create in this country, if possible, greatly expanded markets for many of our major farm crops. The object of the laboratory program is the development of such outlets.

So it seems that the establishment of these laboratories was a move in the right direction. They can be useful in a great many ways, and I look forward to the day when I can give you a more interesting report on the accomplishments of these pioneers in farm-industrial chemistry.

A New Reference for the Agricultural Library



This booklet is available from L. L. Anderson, Meredith Publishing Company, Des Moines, Iowa, at 15c postpaid or 10c each in orders of twenty or more.

United Agricultural-Service Organizations in the Grand Traverse Area

WATSON FOWLE, Teacher, Traverse City, Michigan

A SPLENDID illustration of close co-operation of the several organizations interested in the welfare of agriculture is seen in the program carried out at Traverse City, Michigan. Here for the past two years the local heads of government services in agriculture, and of farm organizations have been meeting monthly to discuss their common problems. The group meets for the noon-day lunch and then spends a couple of hours talking over those agricultural developments in which they have a common interest.



Watson Fowle

These meetings have resulted in the close correlation of the working plans of these groups. Much of the subject material, that has been put into the local part-time classes for out-of-school youths, has come from these meetings. The services that these agencies can offer to young men to aid them in becoming established in farming were made known to the instructor by these informal gatherings. He was then in a position to bring that material to the attention of those farm youths who were in his classes.

A Case Farm Studied Co-operatively

Recently the group has been studying ways and means by which their respective organizations or services may improve a typical Grand Traverse County farm. This farm is owned by the Federal Land Bank. This and the other farm-credit organizations were called upon to show how they could improve this farm situation. The Soil Conservation Service and those organizations that had to do with land-use planning and farm management were used to make soil and erosion surveys, and to set up field boundaries of a workable livestock and cropping plan for this farm. The extension service and the other educa-

tional agencies played an important part in planning the procedures to be followed on this "guinea pig" farm.

The following organization heads participated in the farm-planning project:

Agricultural Adjustment Act.....	Russel L. Bush, president
National Farm Loan Association.....	Hans Wendel
Production Credit Association.....	Leonard Christiansen and James Dymond, secretary and manager
Farm Security Administration.....	Stanley Ball, farm supervisor
Farmers' Co-operative.....	Ernest McCarty, manager
Soil Conservation Service Demonstration Project.....	Lee Rosencranse and Guy Springer
Rural Schools.....	Geo. Eikay, commissioner
Vocational Agriculture.....	Watson Fowle, instructor
Agricultural Extension Service.....	Carl H. Hemstreet, county agent
Rural Electrification Association.....	Harry Hall, manager
Northwestern Michigan Farm Bureau.....	James Harris, president

In this co-operative study each member was presented with a farm-layout sheet prepared by the Soil Conservation Service, giving the soil classifications and the slopes and erosion problems of the farm. The Agriculture Adjustment Administration office furnished complete crop-history data and adjustment and soil payments of the farm for the past six years. The local farm loan association supplied the members with complete "debt history" of the farm for the past six-year period. The extension service supplied data sheets giving work units for crops and animals to use in building up cropping, livestock, and management plans for a prospective tenant to use in making a livelihood on this northern Michigan farm.

Educational and Social Opportunities Studied

In this study the educational and social opportunities for the prospective tenant were considered. The influence of rural electrification, good roads, and the trading centers as they influenced this farm family were taken into account. The group spent one meeting visiting the farm to get first-hand information on all of the many social, economic, and local farm-management factors involved in this particular situation.

The very detailed study of this farm was used as a basis for considerable class study in both the part-time classes and the all-day classes during the winter of 1941. With all the supporting data that the group had accumulated for this

farm, it made a very complete study for the students. Having the material of such recent and complete findings on a farm of this community was a motive for a study of "Farm Success Factors" when presented to high-school classes. The study of this farm was so complete that it carried the students to the consideration of farm financing, farm management in terms of crops and livestock enterprises, soil conservation protection, and even of the social factors influencing a farm home.

At the conclusion of this project, all

members in the discussion-luncheon group agreed that it was a very practical way of bringing to the entire group a closer understanding of the problems of each organization and the functioning of each organization. A by-product from the study was a very fine piece of educational material that was used in the Traverse City vocational agriculture department for its part-time and its all-day classes.

Using Conference Periods

K. C. THATCHER, Instructor,
Grinnell, Iowa

TEACHERS of vocational agriculture have been among the strongest advocates of ideas in education that are somewhat revolutionary in character. The supervised practice program, the discontinuation of the use of one textbook, the problem method of teaching, are examples of our deviation from the older ideas of education. We are proud of the results we have had from these deviations because, for the majority of teachers at least, they have proved highly successful. However, these methods are not so successful that we can rest on our laurels and allow ourselves to lag in other lines of education.

The use of conference periods is one of the newer ideas being used by many teachers. The conference period, if handled correctly, has many real advantages as a supplement to the regular classroom work. At Grinnell two hours a week are scheduled for each student as conference periods. These are not compulsory, but are regarded opportunities. The time is used for making project plans, for clearing up ideas about classroom work, for F. F. A. committee meetings, and for informal discussion of problems facing the student, the department, and the F. F. A. chapter.

One highly successful music instructor in the state has each band or orchestra member for private lessons 30 minutes a week. He spends from 15 to 20 minutes of this time in discussion with his pupil, taking him into his confidence on future plans for the music department and impregnating him with ambitions and the desire to be a part of one of the top musical organizations in the state. A part of this technique can be used in

(Continued on page 231)



"Each member was presented with a farm-layout sheet"

A. M. FIELD

Methods

Teaching the Values of Record Keeping

RUSSELL C. HALL, Instructor, Emmett, Idaho

RECORDS of supervised farm practice have long been stressed by instructors in vocational agriculture and by their supervisors, as a most important part of the training of young farmers. Far too many students of vocational agriculture, however, look upon these records as a "necessary evil"—a requirement set up by the teacher of agriculture. Consequently, they often exert little effort toward keeping these records, or do just enough to "get-by." Such will be the case with many of our students until teachers sell them the idea that a farm record has a real value.

From the beginning, a boy must be taught that an enterprise record can be used to his advantage. We must convince him that his records are something more than an account to be kept, corrected, and filed away. If we fail in this, we have helped the boy along the road to the belief that farm records are a lot of "hokey." This attitude will continue to exist so long as we fail to show the boy that his records have a use beyond the point of determining whether he operated at a profit or a loss.

Thoro Analysis Necessary

It is my opinion that we can accomplish this end by means of a thoro and systematic analysis of all records kept on all enterprises carried out in the supervised farming programs of our various departments.

The question arises, what sort of analysis shall we conduct? I have reviewed several types of analysis forms, but have failed to find one which is fully practical and usable. From the various forms examined, I have taken a few principles and combined them with my own ideas; from this study, I have drawn up a plan of analysis which I find adaptable to my idea of usefulness. This plan has practical application, both in selling the idea of enterprise records and in establishing more improved practices in the farm programs carried on by my students.

In the beginning, a complete analysis depends upon the keeping of accurate records by the students and a complete check of these records in various stages as they are being carried out. Completeness of the records is especially important and it is the duty of the instructor to insist upon a complete record as far as practical purposes will allow. A good set of notes along with the record is about all that is necessary for this purpose. To facilitate the keeping of good notes I have set up a mimeographed sheet (Exhibit A) which is filled in for each project. I have found that these notes furnish excellent material for class instruction and for individual conferences with boys.

My next step is to assemble this material in the table as shown (Exhibit B)

in order that an analysis may be made easily by comparison of the practices used on each enterprise with the results obtained. After his enterprise records have been summarized and corrected, each boy is asked to compute the data called for in the form. The material thus obtained is also checked for accuracy. When all material has been checked and found to be reasonably accurate, the results obtained by each boy are tabulated as shown. The results tabulated are considered in detail in class discussion. Practices used on the various enterprises are given special attention and presented to the class, after which discussion is held on the merit of the various practices as shown by the results obtained. From this discussion the class draws definite conclusions regarding the results and the reasons for certain practices being desirable or undesirable in the management of the enterprise. These conclusions are then listed on the blackboard and also entered in the student's notebook, after which the class discussion is turned to the practices which have proved desirable.

situations in which every boy carrying that enterprise has made a definite contribution. It is not material presented by means of textbooks, and, therefore, there is no tendency to discredit the results as being the "brain child" of "white-collar farmers." Results shown by this analysis are a means of tying up all the approved practices advocated by agricultural leaders with the supervised farming program of the boys. It is all the more practical because the records have proved the practices to be desirable.

As a result of using this type of analysis on the records of all major enterprises, I find very few arguments against keeping enterprise records. The boys can see that the records have value in determining the practices they should use in their farming program. The records kept in our department show definite improvement both in completeness and accuracy, and they are kept with the knowledge that they are to be used in classroom discussions.

How Analysis May Be Used

The usefulness of this analytical material goes further than a mere analysis. It furnishes material which is invaluable as an aid in setting up enterprise plans and objectives. It forms a guide for the

EXHIBIT A—SWINE PROJECT NOTES

I started my swine project on which I valued at \$.....
 with
 My sow was bred to On
 she farrowed on , having pigs.
 I saved sows and boars. The pigs were fed in a creep
 feeder from to I weaned
 the litter at days of age, at which time they weighed
 lbs. or an average of lbs. per pig. The males were castrated at
 days of age. The pigs were turned on pasture
 at days of age, and were put in the fattening pen at
 days of age. The pigs were marketed at days of age,
 at which time they weighed lbs. or an average of
 lbs. per pig. My pigs produced pounds for each day on feed, and
 produced a pound of pork for every lbs. of feed consumed.

I fed the following ration in the creep:

The growing ration was composed of:

The fattening ration was made up of:

The average ration for the litter was as follows:

Total hours labor

Total expense

Net profit

Return per hour labor

Total lbs. feed

Total feed cost

Cost of prod. 1 lb. pork

able (Exhibit C). These are then set up as a list of approved practices to follow in the particular enterprise (Exhibit D). Students then enter this list in their notebooks.

Purposes of Record-keeping

It can readily be seen that the material used thruout this analysis is the result of actual records, a group of real

beginner, as well as for the student who has completed several years of agriculture; thus, it furnishes a basis for finding better ways to produce products efficiently and profitably. Last, but not least, it is a means of selling to the boys the true value and importance of keeping farm accounts.

This analysis is not intended to be a comparison between boys who make a profit and those who did not, but rather

EXHIBIT B—SWINE ANALYSIS SHEET

	Erling	Jensen	Lowell	LuDene	Harold	Paul
1. No. of litters	4	4	3	1	2	11
2. Breed	D	D	D	D	CW	D
3. No. pigs born	41	42	30	9	15	63
4. No. pigs saved	25	25	23	6	12	59
5. Percent pigs saved	81	59	76	67	80	88
6. Age on creep, days	3	10	10	22	30	21
7. Age on pasture, days	10	20	.....	26	.....	20
8. Age castrated, days	150	56	84	70	63	56
9. Age weaned, days	91	70	70	80	71	62
10. Weight when weaned	100	60	60	55	40	30
11. Days on pasture	170	160	.....	90	.....	180
12. Age marketed	180	180	150 165	150 210	176	213
13. Total weight, lbs.	5,725	6,437	8,805	1,240	3,315	8,234
14. Average weight	229	257	225	207	234	201
15. Daily gain, lbs.	1.27	1.43	1.4	1.15	1.32	.94
16. Lbs. feed consumed	17,160	23,625	51,000	3,810	11,691	17,130
17. Lbs. feed per lb. pork	3.0	3.66	5.8	3.1	3.52	2.08
18. Ave. cost feed per cwt.	1.25	.90	.85	.86	.75	1.00
19. Cost producing lb. pork	.038	.041	.051	.059	.063	.04
20. Profit per pig	16.22	7.63	5.78	1.17	1.60	5.16
21. Profit per sow	101.37	63.63	.....	7.03	9.61	26.60
22. Hours labor	284	228	191	143	90	281
23. Return per hour labor	\$1.43	1.06	1.57	.25	.46	.56

an analysis to ascertain the limiting factors of production. It is not a matter of how much money Johnny made or lost, but of what the factors are which caused him to do so. These factors show up in various forms, such as: amount of feed, cost of feed, size of house, sanitation, disease, pasture practices, weaning practices, and many others which are readily evident to one completing such an analysis on enterprises with which he has been in close contact. In many cases it is up to the instructor to be the interpreter, to bring out practices he knows were used on the various enterprises with a limited influence, and to prove his stand by means of comparison with other enterprises where approved practices were used with greater success.

Can Apply to Other Enterprises

The accompanying form does not show any of the approved practices. They are revealed in the outline of conclusions drawn by the class, and set up as a separate list for the sake of clarity.

This analysis can be adapted to any enterprise and should be flexible enough to allow for variations in the proved practices for different localities.

EXHIBIT D

APPROVED PRACTICES FOR THE SWINE ENTERPRISE

1. Keep breeding sows in moderate flesh, not poor and not fat.
2. Use the best boar available.
3. Flush sows before breeding.
4. Breed for litters to be dropped Mar. 1st. and Nov. 1st. when possible.
5. Rotate swine pastures every year.
6. Practice the McLean system of sanitation.
7. Feed mineral mixtures containing Iodized Salt to all swine breeding stock.
8. Furnish at least $\frac{1}{4}$ acre of alfalfa pasture per litter.
9. Breed sows on the 2nd or 3rd day of heat.
10. Use farrowing rails.
11. Use accepted type sanitary house.
12. Be with the sow when she is farrowing.
13. Cut needle teeth and mark the litter at 2 days of age.
14. Put on creep feeder when pigs are 10 days of age.
15. Castrate at 6 weeks of age.
16. Wean at 8 to 10 weeks of age.
17. Use a self feeder.
18. Feed sows alfalfa hay in winter.
19. Put barrows in fattening pen at 120 lbs.
20. Keep breeding gilts separate from fat stock and boars.
21. Separate the boars and gilts at 3 months of age.
22. Give the sow a 2-month rest between weaning and breeding.
23. Control lice and mange with crank-case oil.
24. Select easy keepers for use as brood sows.
25. Use breeding crates.
26. Load hogs for market with slappers—don't club them.
27. Feed a protein supplement.
28. Hog off corn to save labor.
29. Market co-operatively.

EXHIBIT C—SWINE ANALYSIS CONCLUSIONS

1. Farrowing houses must provide plenty of room for the sow and litter, to keep trampling at a minimum.
2. A good floor in the farrowing house may save several pigs and, if kept clean, it aids in the general health of the litter.
3. The use of too much bedding is a common fault of many farmers.
4. Breeding gilts on the second or the third day of heat results in larger litters.
5. Breeding gilts too young results in small litters. Breed them at eight months.
6. Fat sows usually have few pigs, or small and weak pigs. Breeding troubles are most likely to occur with fat sows.
7. The larger the enterprise the greater the return per hour of labor.
8. In general, the more pigs saved the greater is the chance for profit.
9. Creep feeding results in larger daily gains and cheaper gains per pound of pork.
10. Creep feeding should begin at 10 days of age, or when the pigs will eat grain.
11. Pasture tends to lower the cost of production, but may lengthen feeding period.
12. Legume pasture produces the greatest gains of all pastures because of its high protein content.
13. Pigs lose less weight if castrated before they are weaned.
14. Early weaning has a tendency to stunt pigs and to retard gains. It also increases the feed required to produce a pound of gain.
15. Pigs should be weaned at eight to ten weeks of age. The milk of the sow is the most digestible and the cheapest feed available.
16. Thin sows should not be bred until they have had a chance to gain back some weight.
17. The cost of keeping a sow is the same, regardless of size of litter.
18. The heavier the pigs at weaning time the faster the gain after weaning.
19. Pigs which are "forced" from the start make the fastest gains and the most profit per pig.
20. The lower the marketing age the less the labor required to produce the same return.

21. Daily gains are lower for breeding hogs than for fat hogs. Gilts and boars, for breeding purposes, should not be fattened—this makes necessary the separation of breeding stock from fat hogs during the fattening period. Boars should always be kept separated from gilts after about four months of age.
22. Grain consumed per pound gain is lowered by feeding skim milk and by giving pigs free run to good legume pasture.
23. The cost of feed, and the price received, directly affect the profits to be expected.
24. Profit per pig is affected by the size of litter, price received, feeding practices, and freedom from disease.
25. The size of the enterprise, gain per day, feed required for a pound of gain, price of feed, and the amount of labor determine the return per hour for labor.
26. Better project records will enable us to determine which practices in swine management are good or bad.

Teaching Students to Plan Better Farm Water Systems

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IT HAS been said by many farm women that one of the greatest needs of the farm home is an adequate supply of hot and cold water piped into the kitchen and bathroom. Probably many more would make the same statement, with perhaps greater emphasis, if they but had a better conception of its advantage in eliminating drudgery. With this conception in the minds of farm mothers today, and with an increasing disfavor toward so few conveniences in the farm home by younger farm women, as well as by young men, it should be obvious that definite attention thru education should be given to the matter.

Unquestionably, this is one of the first factors to be considered toward raising the farm living standards, and can and should be the concern of vocational educators more than of any other division of our educational system. Then it will naturally follow that this type of work should be included in the agricultural program of work and the course of study in agriculture. Perhaps it should be executed in the advanced classes and in young-farmer and adult-farmer groups.

Since interest in and appreciation of a higher standard of living on the farm is of primary importance, much time should be spent planning for the teaching and execution of many of the activi-

ties to be taken up. Steps in developing interest and appreciation in a practical farm water system are suggested.

The class should first determine the existing situation thru a survey of the community. The accompanying survey form may be used. It is meant to be suggestive, only.

The following jobs have been set up under the enterprise Home Improvement. These are, again, only suggestive. An attempt has been made to analyze the enterprise into the logical and successive steps which one naturally follows in installing a water system. However, the enterprise may be broken down into smaller jobs. This is merely a start.

Jobs in Home Improvement (Farm Water Systems).

- 1—Selecting the water system.
- 2—Securing the water supply from spring, shallow well, deep well, or cistern.
- 3—Getting water to house and outbuildings.
- 4—Providing hot and cold water for kitchen and bathroom.
- 5—Installing kitchen equipment.
- 6—Installing and equipping bathroom.
- 7—Installing the sewage system:
 - a—Laying out the system.
 - b—Digging trenches and pit.
 - c—Laying tile.
 - d—Constructing septic tank or cesspool.

The job of "selecting the water supply from spring" has been selected and developed. It is, of course, essential that the class set up and analyze this job under the direction of the teacher. The

job plan presented here is merely a sample of how it may be done by the group and shows some of the necessary steps or practices in developing the spring.

Situations

- a. There are a great many farms in almost any mountainous community that have permanent springs on the hillside above the farmstead.
- b. As a rule the water in these springs is pure enough and soft enough for household use.
- c. In most cases these springs furnish water for the farm livestock.
- d. The water supply is adequate for a complete water system in the home, especially if cleaned out and developed, and reservoir constructed.
- e. These springs, very frequently, are near the farmstead.

Procedure

- a. Survey the situations of members in class.
- b. Select a convenient and workable case.
- c. Visit the case and make survey of situation of the spring.
- d. Return to class with evidence and determine procedure.

Analysis

- a. Cleaning out spring.
 1. What time of the year should this spring be cleaned out? Why?
 2. What tools are necessary for cleaning out the spring?
 3. How should the spring be cleaned out? How much dirt should be moved?
 4. What is the texture of the dirt around the spring water? Below the spring? Why? Should there be a diversion ditch around the spring?
- b. Putting in spring hole.
 1. Is the spring hole necessary? If so, where should it be placed and how large should it be?
 2. What material should be used for its construction?
 3. What should be used for the outlet into reservoir? How should it be placed in spring?
- c. Determining size of reservoir.
 1. Is water to be piped to house, dairy barn, beef cattle, horses, hogs, sheep, and poultry?
 2. How much water is necessary for each member of family and each class of livestock?
 3. How much water will be necessary per day in gallons?
 4. What is capacity of spring? How determine capacity?
 5. How large should the reservoir be?
- d. Securing materials for reservoir.
 1. What materials may be used in constructing reservoirs?
 2. Calculate the amount and cost of material necessary, based on size of reservoir.
- e. Constructing reservoir.
 1. What time of year should reservoir be constructed?
 2. How much labor and equipment are necessary?
 3. What and how much material is necessary?
 4. How will you construct the reservoir?

SURVEY OF FARM WATER SYSTEMS

- a. Name..... Address.....
- b. Date..... Distance from VO-AG Department.....
- c. Size of farm..... (acres) Type of farm.....
- d. Do you have electric power?..... (yes or no)
If so, give source: Home plant....., or central power.....
- e. Do you have running water in home?..... In barn?.....
- f. Source of water supply: Spring....., Shallow well....., Deep well....., Cistern.....
- g. If you have running water check source of power:
Hydraulic ram....., Windmill....., Electric pump....., Gasoline engine....., or Gravity.....
- h. Is there a complete hot and cold water system in kitchen?.....
- i. Is there a complete bathroom with hot and cold water?.....
- j. Source of heat: Coal....., Wood....., Electric....., Gas....., or Oil.....
- k. Indicate satisfaction with present system, if any, as to:
 1. Cost.....
 2. Operation.....
 3. Maintenance.....
 4. Service without trouble.....
- l. Attempt to determine attitude of farm families with these conveniences toward farm life as compared to attitude toward farm life of those who do not enjoy such conveniences. (That is, desire of members of family—especially younger members—to remain on the farm, etc.)

Plan for Doing Job

- a. Locate, clean out, and determine capacity during dry season of the year, preferably during August, September, or October.
- b. Clean out spring hole and vein so that it can catch an adequate supply of the water. Examine the soil under and around the spring hole to see if it will hold the water and not allow the water to leach out. If the soil is too porous and the water leaches away, the water must be conveyed to a lower and better place for the spring hole or the reservoir.
- c. If the spring is weak it will be necessary to provide spring hole and large reservoir. If the spring is strong the reservoir will not need to be as large and vein may flow directly into reservoir.
- d. Construct a diversion ditch above spring to protect it from surface water and from soil being washed in.
- e. Cover the spring hole and vein with suitable slab, preferably concrete, and convey water into reservoir thru a protected pipe with inlet strainer.
- f. The size of the reservoir will depend upon the amount of water needed and the capacity of the spring.
- g. The capacity of spring may be determined by testing rate of flow. Spring flowing one gallon in two minutes will furnish 720 gallons in 24 hours.
- h. On a farm where there are five people (25 gallons per person) living in a house which has running water in kitchen, bathroom, and laundry, and there are four horses (12 gallons each), 15 cows (25 gallons each), three hogs (two gallons each), 20 sheep (1½ gallons each), and 500 birds (four gallons per 100), the average daily water consumption will be approximately 604 gallons.
- i. Construct concrete reservoir with inlet, outlet, and overflow, four feet square and six feet deep. This will hold 720 gallons of water.

References

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- 2—*Rural Water Supply and Sanitation*, F. B. Wright, John Wiley & Sons, pp 118, 123-124, 132-133, 190-192, 207, 209, 211-213.
- 3—*Water Supply and Plumbing for the Farm Home*, Ext. Bul. 95, University of Idaho, Moscow, Idaho.
- 4—*Water Supply for the Isolated Home*, Bul. 114, Eng'g. Ext. Serv., Iowa State College, Ames, Iowa.
- 5—*Reservoirs for Farm Use*, Farmers' Bul. 1703.
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The Use of Audio-Visual Aids in Vocational Agriculture*

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NO CARPENTER uses just one tool to build a house. No teacher should depend upon words alone to convey proper interpretation of problems to students. An efficient teacher draws from the vast storehouse of audio-visual materials for those tools or teaching devices which will make facts become more concrete, thereby making them more easily understood and remembered.

Audio-visual education is not a special brand of education devised to replace any other type of learning. It is simply a name given to that branch of our teaching work which calls into play all types of non-projected and projected teaching aids. Altho the term, "visual education," seemed adequate a few years ago, the addition of the term "audio" became necessary with the rapid development and use of sound aids.

The problems of the average teacher of agriculture involve gaining an adequate understanding of what the field includes and determining the proper use of the right tool at the right time. Too many of our teachers think of visual aids as meaning motion pictures or some other aid, and consequently the stress may be placed on one, not many, of these valuable teaching devices. It is important that teachers keep in mind that no single aid will completely replace any other aid.

Some tools do the job much better than others, and the instructor should be on a constant lookout for that one aid which will be best suited to the occasion. Showing a still projection of the operations involved in shearing sheep is not as effective as the use of a motion picture on the same subject.

An exact interpretation of the place

of different aids in the lesson or job is a difficult one. A motion picture is generally accepted as being an excellent means of previewing or reviewing such a unit of work. A film strip or slide is accepted by many as being the proper aid for supplementing discussion. Non-projected material such as pictures, charts, or maps aid materially no matter what step in the job is under consideration.

A good teacher must cultivate showmanship in his classroom as well as in his outside activities. A change of pace or a new element introduced into the unit being discussed is necessary in order to pick up lagging interests and instill enthusiasm. The "word" teacher should not feel that his own personality plus his ability as a speaker is sufficient to keep a group of youngsters mentally awake. A teacher, no matter how well versed in his subject, must have at his command satisfactory "props" which, when used correctly, give the proper setting for learning. Picture plastered classroom walls are about as bad psychologically as bare walls. A teacher should consider his classroom as a stage, and the unit of work the play.

Altho the development of new major types of audio-visual aids has practically stopped, new adaptations and improvements of old aids are continually being introduced into the field. A true appreciation of these teaching helps comes with the reading of the many worthwhile books on the subject.

A membership in the Visual Education Committee of the NEA is one of the best ways of keeping in step with audio-visual progress. This membership includes a year's subscription to *The Edu-*

cational Screen, a monthly publication covering the field in all its ramifications. Commercial concerns appreciate the value of co-operating with teachers, and much valuable material may be obtained at little or no cost.

A unit of work can never be developed to a state of perfection by the instructor alone. Analyses and teaching layouts should be supplemented by a "supplementary-aids" sheet which permits the listing of material conducive to a more complete coverage of the unit of work to be studied. In addition to these methods of keeping up to date, teachers should be encouraged to experiment, for by the results obtained from such experimentation does the efficiency of our teaching technique increase.

Among the newer forms of audio-visual aids is that of third dimension. A large cattle ranch in Wyoming is using third-dimension pictures to advertise its prize-winning animals. Possible adaptations such as livestock judging should interest our instructors. Projectors for this type of projection are now on the market, and teachers of agriculture should do their part in pioneering in this most important form of aid.

Sound motion pictures have not replaced the silent versions but have definitely found a place in good teaching. "Dubbing in" of voice accompaniment by the teacher is now possible and should give our home-produced motion picture a greater value. Sound-on-slide is an important aid which is rapidly finding its place in teaching agriculture. Recordings are now within the financial range of our teachers and should greatly facilitate such phases of our work as public speaking, judging, etc.

*Presented at the Agriculture Teachers' Sub-Section, American Vocational Association Convention, San Francisco, December 16, 1940.

Using Conference Periods

(Continued from page 227)

conference periods with students of vocational agriculture.

The conference has the psychological advantage of not being compulsory and the student is in a more receptive mood than otherwise might be the case. As soon as the student has a feeling that he has a part in the plans of the department and a responsibility in solving the problems facing it, teaching becomes much easier.

Quite often there will be 15 to 20 boys in the room at one time during the conference hour. The instructor usually makes a check of each boy or group of boys at the beginning of the period to discover why they are in the room. Some of the boys may be there to make an F. F. A. report, some to plan a party, the treasurer to audit books, and the reporter to write a publicity article. Others may be there to work on record books, to draw plans for a hog house, to plan to put hogs on clean ground, and to get advice on many other questions which may not have come up recently in their class work but in which they are interested at the present time. By moving from group to group each is started to work. By taking time to talk over individual problems, it is the opinion of the writer that considerable teaching can be done and that the ground work can be laid for better teaching in regular class time.

Farmer Classes

J. B. McCLELLAND O. C. ADERHOLD

The Influence of Adult Classes in Agriculture on Farming Practices

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"How much are the farm practices of farmers attending agricultural evening schools affected by the schools?" This was the question which persuaded the writer to interview 146 farmers attending 26 different evening schools distributed throughout the state of Iowa. Other questions considered were: Does the age of farmers attending evening schools affect the new, or improved farm practice used? Do owners use more new, or improved practices than renters? Does formal education affect the use of new practices?

The determination of results of agricultural evening classes in terms of farm practices used is very difficult because of the many factors, including farm papers, radio, and extension service, which may affect the type of practices farmers use. If any significant conclusions are to be drawn, it is necessary to eliminate, to a reasonable degree, the effect of outside agencies.

Scope of the Survey

A survey of the evening-school reports by the instructors to the office of the state supervisor of agricultural education revealed that corn and small grains, forage crops and soils, dairying, and hog production were the more common subjects taught. Because of the large number of farmers in various sections of the state who had attended evening schools and had studied one or more of the above topics, it was decided to limit the investigation to these four fields.

Evening schools were selected which would give a good cross section of the type of work done in the state. The centers selected for the investigation were widely scattered. Large differences in nationality of individuals, in soil type, and in economic conditions were represented.

In the schools selected the instructors were asked to submit a list of all farmers who attended five or more meetings upon one subject. Out of this list five or ten farmers were chosen at random for questioning.

The questions used were taken from the instructor's lesson plans and involved practices the farmer should have been using as a result of the instruction. Each farmer was asked if he was using the practice, and, if so, whether the evening school was entirely responsible,



R. V. Diggins

partially responsible, or whether the information had come from some other source.

Results

Analysis of the data gathered thru interviews showed that farmers of both the owner and renter groups were using an average of two and a half practices for which they gave evening schools full credit and approximately two practices for which the evening school was reported as being partially responsible.

There was no significant difference between renters and owners except in forage crops and soils. Here the owners reported using more recommended practices than did the renters. This is probably due to the fact that most practices in this group were more costly, and the benefits might not be immediate in most cases. The seeding of legumes, liming soils, and other soil-conservation practices made up most of the instruction in these schools. It would be expected that owners would be more interested than renters in soil improvement.

It was found that the number of new, or changed practices farmers reported using as a result of evening school was in direct proportion to the amount of formal education, up to and including one to two years in high school. Above that level the reported effect of evening-school instruction was less, but the number of new, or changed practices reported as being used was about the same. This would indicate that farmers on the higher educational level were probably learning from many other sources, whereas the lower educational groups were primarily dependent upon evening schools for their information.

Whether evening-school classes should cater to the younger group of farmers or make no distinction regarding age is a problem often discussed among agricultural instructors. According to the information on this point the age group, from 41 to 51 and older, reported using more improved practices than did the younger groups. This might seem significant until it is recalled that normally there would be more owners in this group. The difference in new, or changed practices was about the same as the difference in practices used in forage crops and soils between owners and renters. Considering all factors, there would appear to be no significant difference between age of the farmers and the effect of agricultural evening schools.

Conclusions

The following conclusions were drawn as a result of the study:

1. The agricultural evening schools studied have justified themselves. They have attained tangible results in establishing improved practices in feeding and management of livestock, soil conservation and legume production.
2. Agricultural evening schools are effective in getting marked results, regardless of the amount of formal education a farmer has. However, farmers with one or more years of college training appear to get less benefit from evening schools than those with less formal education.
3. Farm owners seem to make more changes in forage-crop production and in soil management as a result of evening school than do renters.
4. The age of farmers attending evening schools bears no significant relationship to the new or improved practices they are using as a result of the instruction.

Trainees Teach Part-Time Class

CARL G. HOWARD, Teacher, Education
State College, New Mexico

BELIEVING that participating experience is the only type of instruction which has much chance of success, the trainees in agricultural education at New Mexico State College last year recruited students and organized and conducted a part-time class in the local school.

The supervising teacher took the boys out to visit prospective students who he felt might be interested in such a class. The discussions with the boys at the time of the recruiting visit led the trainees to believe that the boys would be interested in keeping farm records.

With this in mind the first two meetings after organization were given over to a discussion of farm business practices. The students learned how to write checks, make out leases, chattel mortgages, contracts, and other legal forms which farmers meet in their day-by-day activities.

After this interest in business forms had been developed it was only one step further to determine net worth, take an inventory of the farm, and set up a farm budget.

The trainees worked out a diary of entries for the farm account book published by the extension service, and made available to farmers in the state. Part-time students were assisted in working out this problem in the regular account book, taking time out, as occasion demanded, for a discussion of record-keeping practices, budgeting, and other items which are a natural part of records and accounts.

When the problem on a hypothetical basis had been worked out to everyone's satisfaction, each member of the class took a new book and entered therein the inventory of his own home farm, bring-

ing up to date the entries representing the business of the farm from the time he started the record, January 1, 1940.

Monthly Meetings to Discuss Records

This class met only once a month for the entering of the previous month's transactions, and continued on this basis until the end of the year.

The following January the first trainees helped these same boys to analyze the year's business and start a new year of accounts. Incidentally, the trainees have done all of the things which they will need to do another year

in organizing and conducting part-time classes of their own after they are on the job.

No one group of trainees can teach the class and follow up its own teaching. The follow-up is always a year late and each group of trainees has to follow up the work of the previous group. This, however, is exactly similar to following up the work of a predecessor in taking over a new job. Finally, trainees are serving a local need in helping out-of-school farm boys with their problems of establishment in farming, and, incidentally, learning how to teach a part-time class by teaching one.

A Self-Analysis of Several Years of Adult-Class Teaching

FOREST E. VANPELT, Teacher,
Elkhart, Indiana

THE first evening-class experience of the writer occurred in School Corporation 'A', when this type of instruction was first beginning to receive attention in Indiana. The teacher-trainer gave the agriculture teachers of the county a good pep talk and sent them away feeling convinced that each community needed an evening class on dairy problems. Course content was developed at the State University and mailed to each teacher. In attempting to recruit a class of farmers, however, there was found to be little interest in dairy but there was demand for a course on beef cattle. Difficulty was encountered in getting approval on a beef husbandry course, since the county plan called for dairy. The dairy class failed to function, and happily this method of procedure was short-lived and was soon superseded.



F. E. VanPelt

Results From a Course on Landscaping

The second attempt was in another community, School Corporation 'B'. As a result of talks with various progressive-minded individuals thruout the community, considerable interest was discovered in the subject of landscaping home grounds. A liberal interpretation of 'farm problems' in the state office resulted in approval of the plan submitted. The first two or three meetings were well attended by both husbands and wives and the remaining meetings by women only. The encouraging part of this experience was the project application of the subject matter taught. Nearly every home represented has undergone a gradual "face lifting," dating from the spring following the teaching of that course. The appeal to the menfolk was not so strong, but they did not deny their partners the co-operation needed to start plans for improvement. The writer feels that when he gets thru doing the things that

he has to do and has time to do what he wants to do another landscaping course will be offered.

The A and B situations coming from real life carry their own lesson. Farm folk have plenty of places to go and plenty of demands on their time and energy, but they will attend discussion groups based on subject matter they want.

The Effect of a "Five-Year Plan"

The writer moved to School Corporation 'C' about the time the "Five-Year Plan" organization was initiated in Indiana. In line with this plan a proposed curriculum for evening classes was developed. The first class in this curriculum called for problems of soil fertility and maintenance. Since the teacher had been "keeping his ear to the ground" this first course was near enough in the future that demand was assured and a fair degree of success resulted with a satisfying degree of new and improved practices initiated.

The following year a course on dairy production problems made its appearance. Since the community is predominantly a dairy farming section, it is never especially difficult to get an audience on dairy questions. This series of meetings probably helped the teacher more than any one of the farmers attending. The accumulated experience and study of the group was absorbed by the teacher and used to supplement the text material studied by the all-day pupils. This resulted in a healthy situation wherein basic textbook information was brought to life by proved community practice.

Dads Turned Record Keeping Over to the Boys

"Farm records" was the next subject in the proposed curriculum (which curriculum incidently was approved and became part of the archives), and an interesting discovery was made. The fathers of vocational students do not like to keep records any more than do their sons. In most cases records were begun and turned over to students in day classes for completion. A valuable outgrowth of this attempt was a closer bond

of fellowship and mutual helpfulness between father and son.

Following the approved curriculum the evening class for the current year carries the title "Swine and Poultry Production Problems," with five lessons on each subject. Both of these enterprises are of minor importance in the community. In order to foster the spirit of junior partnership with Dad, referred to in connection with the farm records, the writer thought it would be a brilliant idea to combine a meeting of the boys' 4-H Pig Club with the opening meeting of the evening class for adults. A movie on the subject of swine production in both color and sound was presented as the entertainment feature of the evening. The film seemed to cover the problems of swine production so adequately that few of those attending the first meeting came back. The sessions on poultry have been well attended, however, and some improved practices may be adopted.

Plans for the Future

One more title remains on the five-year plan which will probably be attacked next year. It is "Special Problems in Crop Production" and suggests a lesson on each of the following crops: corn, spelt, wheat, oats, clover, muck crops, farm woodlot, potatoes, horticulture crops, and landscaping. This seems to offer a wide enough variety of subject matter that it should appeal to most general farmers, and was probably a wise provision when set up for the final year of a five-year program.

Definite plans including the essential points of each lesson presented are of such vital importance that the writer has omitted more than this casual reference on the assumption that everyone attempting an evening class makes plans for it. The teacher-training courses offered by our state universities give teachers the same opportunity to get together and compare notes that is offered by the agricultural teachers to farmers of the community thru the evening class. The writer found a three-week intensive course of this nature to be helpful. Of course, the definite lesson plans worked out in such a training period may not fit the trend of thought when the evening-class session is under way. The old Indian fighter's slogan, "Trust in the Lord and keep your powder dry," seems to be adaptable to the teacher of agriculture venturing into evening-class work with adults.

Conclusions From the Analysis

In recapitulation the writer would like to indicate his main points in self-diagnosis.

1. The successful evening course comes from the 'grass roots'.
2. Contact with the farmers of the community and with the fathers of the vocational students, keeps the teacher's feet on the ground.
3. A powerful backing for the agricultural program in the community can easily grow out of the evening classes even tho the teacher is not generally conceded to be a 'fount of all wisdom.'
4. Failure may come from extremes in either of two methods—lectures by the teacher, or unbridled class discussion.
5. If no new practices or improved practices result after a reasonable time, a check up of method is in order.

Studies and Investigations

C. S. ANDERSON

Some Characteristics of Young Farmers and Their Significance for Teachers¹

JOHN B. McCLELLAND, Teacher Education, Ames, Iowa

THIS article is designed primarily to assist teachers of part-time classes in vocational agriculture to understand the needs and interests of their students. However, it will not be limited to students who are at present enrolled in part-time classes but will include characteristics of all out-of-school young farmers.



J. B. McClelland

It is recognized that many part-time classes in vocational agriculture, like most other youth programs, tend to attract a selected group in the upper social-economic status. However, in some cases, teachers are reaching a fairly large proportion of the young farmers in their communities. In a study of 117 young farmers' associations in Ohio, Glen Miller found that these associations of part-time class members enroll 50 percent of the estimated number of available young men on farms in their areas.²

A Broader Appeal Needed

Those working with young-farmer groups should be familiar with the characteristics of all out-of-school young men on farms because there seem to be very good reasons for planning a program that will meet the needs and appeal to the interests of a fairly large percentage of all of these young men. Although less than half of the farm boys reaching the age of 18 each year are needed to take over the number of farms that fall vacant,³ it seems doubtful that the part-time program should be planned only for young men who will remain permanently on the farm.

One reason that the part-time enrollment should not be limited to those who have definitely decided upon farming as their lifework is that the vocational preferences of young persons of these ages frequently change. C. S. Anderson has shown in his recent study that only 34 percent of former students of vocational agriculture who dropped out of high school some time prior to graduation and who were farming in 1939 indicated as freshmen in 1929 that they preferred farming or a related occupation as a vocation.⁴ Anderson's report does not indicate just when these students changed their vocational preferences, or how many still have preferences for occupations other than farming, yet while only 34 percent said they preferred to farm in 1929, 100 percent of them

were actually farming 10 years later in 1939. It is apparent that many would have missed an opportunity to study vocational agriculture in a part-time class if teachers enrolled only those who expressed a preference for farming as a vocation.

Other points will be brought out later indicating the desirability and possibility of offering a vocational program that will meet the needs and appeal to the interests of a fairly large proportion of all out-of-school young farmers.

Intelligence and Educational Attainments

The statement has been made that only one out of two young persons in Ohio who are intelligent enough to carry college work go to college.⁵

A sampling study of 1,000 youth in Pennsylvania showed that, while 172 went to college, 174 others equally well qualified could not go because they lacked money.⁶

If only about half of the young people, who are capable of doing so, go to college in states like Ohio and Pennsylvania, which contain a very high percentage of urban population, there must be a much higher proportion of farm youth of college caliber who do not go on to such institutions, for studies such as the Regents' Inquiry in New York State have shown that a much smaller percentage of rural young people than urban persons enroll in college.⁷

While the Regents' Inquiry points out that a marked tendency exists for the less academically able students, as measured by both aptitude tests and school marks, to withdraw at low grade levels;⁸ yet in Anderson's study in Pennsylvania, the mean intelligence quotient of boys who dropped out of school and farmed was only 2.6 less than the mean intelligence quotient of all boys who entered high school.⁹

Bernard Joy reports that a survey of unmarried rural youth in typical communities in seven states distributed thruout the country showed that 32 percent had only elementary school training and 35 percent were high-school graduates.¹⁰ A number of studies have shown that large percentages of out-of-school youth left school because they lacked interest and failed to get along well. Yet these surveys also show that a large proportion of these young persons could be interested in certain types of educational opportunities. Sixty percent of all youth interviewed in the Maryland study said that they wanted vocational education of some kind.¹¹ Only a very small percentage, however, specified vocational education in agriculture.

The fact mentioned previously that part-time classes in agriculture in 117 communities in Ohio enrolled 50 percent of the estimated number of available young men on farms in these communities is evidence that a fairly large percentage of farm youth may be interested in this field of educational activity.¹²

Since many part-time classes in agriculture enroll some who completed college and some who have only a grade-school education, it is essential that teachers give attention to individual instruction as well as to group instruction based upon common needs and interests of the various members of the part-time class.

Vocational Interests

"Earning money for themselves" and "getting started in some vocation" seem to be important interests of a majority of farm boys and young men. Joy points out that these two problems were marked first and second respectively out of a list of 15 problems of unmarried rural youth. More than 50 percent of those replying indicated that each of these two problems was of "great" or of "some" importance.¹³

Anderson and Kerns found that farm boys not in school ranked "increasing their incomes" first from the standpoint of interest out of a selected list of 36 topics.¹⁴ Of course, the matter of increasing our incomes is of considerable interest and importance to most of us regardless of our age and regardless of whether we live in town or country, yet there are many indications that this is an especially serious problem of farm youth.

It is not necessary to repeat the numerous facts substantiating this statement such as the number of rural youth on relief, the number who are unemployed, the low incomes of farm youth, the surplus of young people on farms, and the difficulties encountered by farm youth seeking employment in cities. Melvin and Smith point out that even on good land the bad effects on the economic opportunities of the "piling up" of youth is made manifest.¹⁵

Fifty-two percent of the rural youth included in surveys conducted by the extension service had not decided upon a vocation.¹⁶

The New York Study by Anderson and Kerns showed that 50 percent of the out-of-school farm boys had no occupational plans for five years hence and 45 percent did not have any plans for a lifework.¹⁷

In spite of this very apparent need for guidance and assistance in the matter of preparing for a vocation, two-thirds of the young people in the Maryland study reported that they had received no guidance in the schools. In New York only four percent of a group of former high-school students said that teachers, principals, or counselors had helped them choose their occupations.¹⁸

That the majority of farm youth are interested in an opportunity to carry individual projects or plan home study is shown by the responses to a question concerning these points in a study by W. H. Stacy in Iowa.¹⁰ Seventy-seven young farmers in this study answered a question as to whether each member should carry an individual project or plan of home study: 48 said "yes" and 29 said "no." Experience of teachers of part-time classes who stress the supervised farming phase of their programs also shows that young people are interested in this phase of the educational program.

While this brief summary of the vocational interests and needs of young farmers has only touched upon a few of the high spots of the problem, it is evident in the light of the interests and needs of farm boys that part-time instruction for this group should stress the vocational aim of placement and establishment in farming. However, some attention should also be given to the large number of young men on farms who are undecided about their vocation and who are facing immediate problems of earning money for themselves. Most of these young men who are undecided about future plans are farming to some extent at the present time; some will remain on the farm altho many others will doubtless eventually secure employment in various occupations. The teacher of vocational agriculture should be able to give some assistance to these young men in the way of guidance; he could provide vocational training in farming while they remain on the farm; perhaps he could provide some vocational training for those who will eventually go into related occupations, and possibly, indirectly, he could give some help of vocational value even to those who go into non-agricultural occupations.

Mechanical Interests

A number of studies have shown that mechanical interests rank very high in the case of out-of-school young men on farms.

Anderson reports that 84 percent of the young farmers who had dropped out of school would like to enroll for a series of agricultural classes to be held in the evenings and that work in farm mechanics ranked second in order of preference in a list of nine agricultural subjects. Dairying was selected as first choice by these boys.²⁰

Mechanics ranked first among hobbies reported by out-of-school farm boys in an Iowa study directed by J. A. Starrak. Thirty-three percent of the farm boys in this study reported mechanics as a hobby. Only 15.3 percent of the boys reported livestock as their hobby altho livestock was second in importance in the list.²¹

"Learning more about gas engines" ranked second in the selected list of 36 interests of out-of-school farm boys in the New York study.²² It is probable that these mechanical activities rank so high as interests of farm boys because some of the boys see a possibility that vocational opportunities may be open to them if they can develop some skill and get some experience in this field. Many farm boys, of course, are interested in more efficient care, repair, and operation of farm equipment, but others have

doubtless noted that farm boys who get jobs in town are frequently employed on construction jobs as truck drivers; some are employed in filling stations or as helpers in garages; and some who go into shops and factories operate machines. It is probable that a survey today would show even greater interest in mechanical activities due to the wide recognition of need for training in this field for defense workers.

Whether these boys are interested in the vocational possibilities of mechanics or whether they are interested in this activity as a hobby, offering some work in farm shop and farm mechanics, perhaps concurrently with managerial courses, this interest offers an excellent opportunity for the teacher of vocational agriculture to add to the interest of his part-time program.

Personality Development

Personality development is another problem or topic that is usually ranked very high in the list of interests of out-of-school young farmers. "Developing personality" ranked sixth out of the 36 selected topics in the New York study, while a closely related topic "learning more about etiquette, the approved methods of meeting people, and taking part in social life" was ranked eighth on this list.²³ Perhaps one reason for this interest is that the young men who will need to seek employment elsewhere than on the home farm realize the importance of personality traits as a factor in getting and holding a job. J. M. Brewer, in a study made before the depression, found that more people lost their jobs because of inability to get along well with other persons than because of lack of requisite technical skills.²⁴ A. K. Getman, in an address at the American Vocational Association meeting at St. Louis in 1938, said that a study in New York State indicated that a large majority of failures of young men in technical work related to agriculture but not requiring college training were due to some type of personality weakness and not to lack of technical knowledge or skill in the occupation.

These studies suggest that some emphasis upon personality development may have direct vocational value, at least to those young farmers who eventually go into occupations related to farming or into other occupations.

"Developing a more attractive personality" was fourth on the list of 15 problems checked as being of "great" or of "some" importance in the extension study referred to previously.²⁵ Joy, in commenting upon this interest, makes the following statement.²⁶

Developing a more attractive personality . . . is more than a matter of being attractive to the opposite sex as problems dealing with that situation were reported as important by much smaller numbers. It grows out of the natural desire for self-expression, particularly self-expression in social situations. The three principal social activities of out-of-school youth: (1) attendance at church and Sunday school; (2) going to movies; and (3) auto riding, offer meager opportunity for constructive self-expression. The desires for personality development and additional education are part of the reason that nine out of every 10 young people expressed the desire to join an organization of young people their own age.

Group Social and Recreational Activities

Teachers of part-time classes, as well as young people themselves, stress the need of an organization that includes both young men and women. Such an

organization provides an opportunity for social and recreational activities and also provides opportunities for an educational program in other areas of mutual interest.

Seventy-seven percent of the 117 teachers of vocational agriculture in the Ohio Study of Young Farmers' Associations indicated a need for general youth organization in the community including both young men and young women.²⁷ The advisers of these Ohio Young Farmers' Associations reported that "improving the social and recreational life of members" was the third most important objective of these groups of part-time students. The objective which ranked first was "to improve farm practice." "To provide further education" was listed by the second largest number of teachers reporting on purposes of the young farmers' organization.

Activities in co-operation with part-time classes of girls in home economics, with extension youth groups, and other youth organizations, are proving to be very desirable means of providing for a broader educational program in social, recreational, and other fields of common interest. Such activities supplement the regular program of systematic instruction in separate classes in the more strictly vocational phases of the program.

Marriage Problems

Young farmers who are enrolled in part-time classes are at the age when they are preparing to marry, as well as preparing to take up a vocation. Both are important steps. Melvin and Smith point out that for farm youth marriage usually requires both a social and an economic adjustment. It frequently marks the time in life when the young man begins to operate a farm for himself. Traditionally the farm home and the farm business are one.²⁸

It seems quite probable that even those who feel that the program in vocational agriculture should include only activities which further the aim of proficiency in farming, should give careful attention to the importance of a successful marriage as a factor in success in farming.

Farm-management studies have indicated that the interest and co-operation of the wives are associated with success in farming.

In a Minnesota Study, 72 farmers ranked 15 factors that they thought were responsible for the degree of success they had attained in farming. The wife's co-operation was ranked as the second most important factor in the list. Farm experience was ranked first while school training was eleventh.²⁹

Perhaps school training would have ranked higher in this study if a larger percentage of these men had had an opportunity to study vocational agriculture in school, but it is possible that educators in the field of vocational agriculture are putting too much emphasis upon formal schooling and should put more emphasis upon the possibility of improving some of the other factors of successful farm management, including that of the co-operation between husband and wife, thru some more informal type of educational activities.

In another study, in Indiana, each farmer was asked 10 questions bearing upon his wife's interest and help, such

(Continued on page 238)

Future Farmers of America

L. R. HUMPHERYS

Michigan Future Farmer Leadership Camp

RAYMOND M. CLARK, State Supervisor, Lansing, Michigan

THE Michigan Future Farmer Association held its first state leadership training camp in July, 1940. One hundred local chapters sent delegates to the camp for a week of intensive training in leadership activities. The camp buildings and facilities, food, water-front supervision, and equipment were furnished by the W. K. Kellogg Foundation of Battle Creek. The costs of instructional supplies, expenses of instructors and FFA supplies were met by a five-dollar fee charged each delegate by the State Association of Future Farmers of America.



R. M. Clark

The Camp Program

The schedule of a typical day's activity was as follows:

- 6:45 Rising bell
- 7:15 Flag raising
- 7:30- 8:00 Breakfast
- 8:00- 8:30 Cabin cleanup
- 9:00-11:00 Class period
- 11:00-12:00 Recreation and swimming instruction
- 12:30- 1:00 Dinner
- 1:00- 2:00 Free period
- 2:00- 4:00 Class period
- 4:00- 5:30 Recreation or swimming
- 6:00- 6:30 Supper
- 6:30- 7:30 Boating period
- 7:30- 8:30 Speaker
- 8:30-10:15 Stunt night
- 10:45- Taps and lights out

The foregoing class schedule provided opportunity for every boy to attend each class offered sometime during the week. The following is a list of the subjects offered in the class periods, together with the names of the instructors who conducted the classes:

Clarence Bundy—Teacher-Trainer
Iowa Falls, Iowa

Watson Armstrong, Teacher-Trainer
Lexington, Kentucky

Harold M. Byram, George P. Deyoe,
Glenn Cook, Teacher-Trainers
Michigan State College

Harry E. Nesman, State Supervisor
George D. Gilbert, Assistant State
Supervisor, Agricultural
Education.

In addition to the above-scheduled activities, a class in life saving was organized when it was discovered that there were a number of boys in camp

who were potential candidates for the lifesaving award. This class was taught by Kooman Boycheff, director of the water front for the Kellogg Foundation. Six boys from this class qualified for their lifesaving award at the camp. The services of these young men will be valuable in assisting with water-front supervision of local and regional FFA camps.

History and Objectives

The idea of a State FFA leadership training camp was developed when a joint committee of the State Association of FFA and the Michigan Association of Teachers of Vocational Agriculture was appointed. During the winter this committee studied a number of possible locations for a permanent camp for the Michigan Future Farmers. Finally a camp became available to the State Board of Control for Vocational Education for the use of all vocational education groups. The committee agreed to co-operate with the State Board camp program. This camp is now available for the use of FFA groups and others who wish to use it in future years. In the meantime, opportunity to use the Kellogg Camp for one year was secured and accepted.



"Local chapters sent delegates to the Camp for one week of intensive training"

Program Planning
Developing Techniques of Leadership
Objectives and Purposes of FFA
Parliamentary Procedure
Chapter Motivation
Model Chapter Procedure
Duties of Presidents and Vice-Presidents
Reporting to Chapter, Supt. of Schools,
State Office, and Newspapers
Duties of Secretaries and Treasurers
Best Chapter Contest
FFA Constitution and History
Relationship of FFA to School and
Community.

The objectives of the FFA camp program were (1) to help improve local FFA programs thru training of local FFA leaders, and (2) to help develop leader-

ship ability of individual delegates.

Camp Organization

The camp instructors and counselors were urged to plan and carry out every activity on the days scheduled so that they would contribute to the above objectives. For example, the recreation program was planned to demonstrate to the boys types of activities which might be carried out in the local chapter. Each boy was given a chance to participate, and the emphasis was placed on participation rather than on winning. The stunts also were planned to include as many boys as possible and to develop both initiative and leadership ability.

A camp council of boys and leaders was organized to give opportunity for further participation by camp enrollees. This council was made up of a boy from each cabin, together with each cabin leader. The council met each day to discuss problems of the camp such as homesickness, camp routine, and other problems. The activities of the camp were carried out by four tribes organized by groups of cabins. This plan gave still further opportunity for participation and development on the part of the boys.

Training of Counselors

The cabin leaders were selected from instructors of agriculture in the field and trainees in agricultural education at Michigan State College. One-half of the cabin leaders were given opportunity

to meet with leaders of other camps which were being conducted by the Kellogg Foundation, for a week of intensive training and program planning prior to the opening of the camp season. This training period was very valuable for setting up the program and for training the cabin leaders in their responsibilities at the camp. The experiences of the leaders in the camp were also worth while in developing definite ideas of FFA programs, methods of teaching boys and other experiences which were part of their program.

Results

Many valuable results are already apparent. The FFA programs of chapters which participated in the camp train-

ing are much improved over those of a year ago. Both teachers and Future Farmers are more aware of the place of the FFA in building a well-rounded program of vocational agriculture in the local community. Leadership training among the chapters in sections of the state is developing. In a number of cases the chapters of a county have conducted leadership training camps patterned after the state camp. This development will assist still further in the accomplishment of the objectives by giving the trained boys experience in acting as leaders and by training still other leaders.

Arkansas Future Farmers Turn to Radio

V. H. WOHLFORD, State Director of
FFA Radio Programs,
Hot Springs, Arkansas

THE Future Farmers in Arkansas for the last 10 years have shown steady growth in adapting modern practices for disseminating information to the public thruout the Southwest as to what departments of vocational agriculture and FFA chapters are doing in furthering the utilization of better farming practices and in leadership training.

During the year 1930, 45 radio programs were given in Arkansas by the FFA totaling 12 hours. This number increased gradually until in 1937 there were 90 programs, with 36 hours of time. In 1938 the FFA chapters gave 297 programs utilizing 141 hours of time. During the present year 377 programs, totaling 187 hours, will be presented by the 8,000 FFA members over nine stations in the state.

The annual theme, "Better Rural Workers and Leaders Thru Proper Guidance and Planned Activities" was set up by the director early in the season. This general theme was broken down into 16 monthly themes, each of which emphasized an important phase of the state program of work, as well as the national significance.

Sample radio programs were made up for a 15-minute broadcast and a 30-minute broadcast. Work was started on the broadcasts at least three weeks in advance of presentation. Boys were carefully selected; close attention was paid to the elements of speech, expression, enunciation, articulation and interest in the work. The time limit was checked closely in order not to run over nor under the allotted time. An official theme song was used over the entire state for opening and closing the broadcast, thus acquainting listeners with the program and teaching them to recognize it.

The monthly theme is always played up, bringing out those points which show what is being accomplished thru efforts of chapter members. Evening-school members, superintendents, and other individuals are invited to appear on the program, thereby showing the connection between the vocational departments and other departments in the school system.

Skits, playlets, round-table discussions, questions and answers, interviews, papers, and bulletin boards, are used to keep the interest of the listeners. Cards,

letters, and telegrams are received by the studio, following the program. This tends to show the far-reaching extent of the broadcasts.

The chapter presenting the outstanding program over each station is awarded a radio. The winner is selected by the studio staff. In this way we hope to add several radios to the various departments in the state.

Public relations is a very important and necessary phase of vocational education work in any state, and we in Arkansas have learned that more information and education can be sent into homes and will receive a wider audience thru the radio than thru any other medium. We have found the radio an ideal field for the training of public speakers of FFA chapters.

*Mr. Wohlford has expressed his willingness to supply further information in answer to specific questions. His office will give assistance to interested persons whenever possible.—Editor

Chapter Tours

READERS who are keeping in touch with the activities of future farmers in any one state have been impressed with the fact that there is a wide difference in the practices of FFA chapters in making tours. One chapter in a certain state planned for over a year on a tour to Old Mexico City. The trip was eventually made. Seventeen days was the time required for the journey. It should be stated that less than half of the boys made the tour. Upon their return home the local newspaper printed a story of the tour, covering two-and-a-half columns of space. Later, during the same summer the adviser of the chapter spent three weeks at a state summer conference and took two weeks vacation. Now total up the time that this teacher of vocational agriculture was away from his district and one immediately may ask the question, "When does this teacher find time to visit the Future Farmers and adult farmers of his district and co-operate with them in an improved farm program?"

Contrast the above incident with another chapter in which 94 percent of the members of the chapter took a two-day tour in the mountains, with several of their dads making the trip. You will then ask the question, "What constitutes a satisfactory chapter tour?" Possibly to this question no direct answer can be given. However, a few fundamental principles bearing on the question can be enumerated.

Budgeting Time During the Summer

The teacher of vocational agriculture has contracted his time to the local board of education. The service to be rendered in this contract covers a number of aspects of farm life—instruction, supervising farming activities, and promoting general community activities, both vocational and avocational. This means that the summer is possibly the most important period of the year for the teacher of agriculture. Indeed, it might be said that the effectiveness of the work of the teacher in vocational agriculture is measured very largely by the way he spends his summer. What I am trying to say is that there must be *balance* in the teacher's time budget if

the program is to be effective. Spending 17 days on a chapter tour with only a few members, two weeks on vacation, and three weeks at summer conference, does not make sense in a balanced program of supervised practice. Neither can such a program be justified.

Any tour should have definite educational and recreational value to justify the use of the teacher's time. To provide such values careful planning should be done well in advance of the tour. In fact, the success of the tour depends upon care in planning and executing the plan. The officers and members should share in this privilege and responsibility. If the adviser does all the planning, he robs the members of what rightfully belongs to them.

Parents Should Be Informed

In making a tour with future farmers, it is the act of good judgment on the part of the adviser to inform the parents fully concerning the proposed trip and to secure their advice and co-operation. By his doing that, the parents feel that they, too, are a part of the program. Finally, it is good practice for the adviser to have the written consent of parents for their boys to make the trip.

A chapter tour in many respects is a parade before the public. In many cases the Future Farmers are distinctive from other traveling groups. The name of the chapter may be on the bus; the boy may wear a uniform or a cap; an FFA song may identify the group, or in other ways, their identification becomes immediately known to the general public. The actions of the group serve in a very definite way to fix in the minds of the public the type of organization to which these boys belong. A few unfortunate happenings during Future Farmer tours in various parts of the country may brand the organization in an undesirable way. All of this means that before making a tour, there should be a few rules and standards set up to which all agree to adhere.

Travel is one of the most effective means of education for the American public. Surely the Future Farmers should share in this activity under the guide of a well-informed leader and director. A tour combining educational and recreational values in terms of needs of rural folk is good education.

Let it be remembered that it is the business of education not merely to train boys in the pure mechanics of farming, but also to train boys and men as leaders and followers in all of life activities.—L. R. Humphreys.

EMPLOYMENT STATUS OF YOUTH 14-24 YEARS OF AGE MARCH 1940 (1940 U. S. Census)

In Non-Emergency Employment	9,001,745
In Emergency Employment	631,718
Unemployed and Seeking Work	1,998,502
In Own Home Housework	3,953,239
In School	8,980,497
Unable to Work	256,558
In Institutions	227,076
Other	404,214
Unknown	872,104
Total	26,325,653

Characteristics of Young Farmers

(Continued from page 235)

as, "Does your wife know your livestock production plans? Does she help with the chores? Does she want the children to be farmers?" and so on. The answers to the questions were evaluated on a scale of 0-100 by the investigators. Forty-seven men who had scores above 84 concerning the co-operation of their wives had 105 percent larger incomes than 55 men with scores under 55.³⁰ Apparently then, even those who hold a strictly vocational viewpoint of the program in vocational agriculture should encourage the development of a co-operative program between students of vocational agriculture and students of homemaking. Co-operation in educational, social, civic and recreational activities should lead to better co-operation in the home.

Conclusions

Many studies of the characteristics of young farmers point to the need for continued emphasis in part-time classes in vocational agriculture upon the objectives of placement and establishment in farming thru a program of systematic instruction in agriculture including supervised farming activities. Such a program appeals to major interests and needs of young farmers; namely, earning money and getting established in a vocation.

An analysis of some of the characteristics of all young men on farms indicates that an effort should be made to enroll a larger percentage of these men for part-time classes. This is suggested even though it is recognized that many are undecided concerning their future vocational plans, many have preferences for vocations other than farming, and many have widely varying social and educational backgrounds.

In addition to the study of managerial problems such as those relating to getting established in farming and to conducting supervised farming programs, boys who will remain permanently on the farm, as well as those who are farming temporarily, probably will benefit from some instructional activities in farm mechanics. Such activities are ranked high in interest by most farm youth.

Young farmers are also very much interested in personality development and in opportunities for group social and recreational programs as well as other educational activities, in which both young men and women participate. Such activities may have vocational as well as other values both for those who remain on the farm permanently and for those who eventually go into other vocations. Co-operation with part-time classes in home economics and other youth groups is suggested as a means of developing effective programs in these areas.

1. This article includes material presented by the writer at the North Central Region Annual Conference on Agricultural Education held in Chicago, March, 1940.
2. Young Farmers' Associations in Ohio, (Mimeographed) Department of Agricultural Education, The Ohio State University, Columbus, Ohio, 1937, p. 7.
3. A Program of Action for American Youth, (pamphlet) American Youth Commission of the American Council on Education, 1939, p. 7.

Two Brothers on the Road to Establishment

HAROLD KIEPE, Instructor,
New Hampton, Missouri

TWO Missouri farm boys, brothers now 18 and 20 years old, bought their first purebred sheep in 1935, when they purchased two Shropshire ewes to start a required project in their high school's new vocational agriculture department at New Hampton, Missouri. Just the other day they added their profits and learned that their high-school venture had netted them \$427.13 above labor charges in 1940.



"Both boys hope to become breeders of registered Shropshires"

The young lads are Herman and Randall Bender, sons of Mr. and Mrs. Walter Bender. They have done extraordinarily well raising Shropshires on the rolling prairie land of northwest Missouri.

In the fall of 1935, when the vocational agriculture department was added to the New Hampton High School, Herman Bender, then a sophomore, enrolled in vocational agriculture. Under the supervision of the instructor, Mr. A. Mel Akars, he purchased two choice four-year-old Shropshire ewes from Ellis Hill, a local breeder, for \$12.50 each. A brother, Randall, who enrolled as a freshman the next fall, also decided to have purebred Shropshires for his project; he purchased a ewe from Gilbert Weed, another prominent local breeder of Shropshires.

That same fall, the department changed instructors. With the able and unselfish help of local sheep men, and

especially Gilbert Weed, the local breeder, these boys, the parents, and the instructor worked together in close harmony to develop the fine flock that has been built up over the short period of five years.

From year to year, the Bender brothers have kept their ewe lambs for foundation stock, selling the older ewes and rams, and replacing them with more choice breeding ewes. All but the first two ewes have been bought as bred ewes from Mr. Gilbert Weed, the local breeder mentioned above. They now have in the flock 15 head of breeding ewes, one herd ram, eleven ewe lambs, and eight ram lambs. They sell their rams as yearlings. This year, their eight yearling rams netted them \$227.50.

Both of the brothers agree that the improvement in their flock was made by the careful selection of their foundation stock, as well as feeding and management, and by the strenuous culling program that they use.

Since the brothers have been showing their sheep they have won a total of \$233.50 in prize money.

Herman enrolled in the University of Missouri College of Agriculture last fall, and is making superior grades. When he entered college he sold half of his interest to his father, who has become interested in registered Shropshires, and is replacing the grades that he has been keeping on the farm. Randall, the younger of the two brothers, is staying at home, taking care of the sheep and helping his father on the farm.

Both brothers hope to become breeders of registered Shropshires. Last fall they were made members of the American Shropshire Breeders Association.

4. C. S. Anderson, *Out-of-school Rural Youth Enter Farming*, The Pennsylvania State College School of Agriculture and Experiment Station, Bul. 385, 1940, pp. 20-21.
5. H. A. Tooze, Department of Psychology, Ohio State University, *Speech at Adult Education Conference*, Columbus, 1935.
6. William McKinly Robinson, *Rural Youth*, (pamphlet) National Congress of Parents and Teachers, 600 South Michigan Blvd., Chicago, Ill. p. 9.
7. Ruth E. Eckert and Thos. O. Marshall, *When Youth Leave School*, The Regents' Inquiry, 1939, Mapleton Press: York, Pa. p. 161.
8. *Ibid.* pp. 67-68.
9. C. S. Anderson, op. cit. p. 17.
10. Proceedings of the National Conference on Problems of Farm Youth, (Mimeographed) 1939, U. S. Department of Agriculture Extension Service.
11. Howard M. Bell, *Youth Tell Their Story*, Washington, D. C.: American Council on Education.
12. Young Farmers' Associations in Ohio, op. cit.
13. Proceedings of the National Conference on Problems of Farm Youth, op. cit. pp. 40-41.
14. W. A. Anderson and Willis Kerns, *Interests, Activities, and Problems of Rural Young Folk; II, Men from 15 to 29 years of age*, New York: Cornell University Agricultural Experiment Station, Bul. 631, 1935, p. 13.
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18. Maxwell S. Stewart, *Youth in the World Today*, Public Affairs Committee Pamphlet, 1939, prepared in Co-operation with the Staff of the Youth Commission of the American Council on Education, p. 11.
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21. J. A. Starrak, *A Survey of Out-of-School Rural Youth in Iowa*, (Mimeographed) 1935, Iowa State Planning Board.
22. W. A. Anderson and Willis Kerns, op. cit. p. 13.
23. W. A. Anderson and Willis Kerns, op. cit. p. 13.
24. J. M. Brewer, "Causes for Discharge," *Personnel Journal* 6: 171-172, 1927.
25. Proceedings of the National Conference on Problems of Farm Youth, op. cit. pp. 40-41.
26. *Loc. cit.*
27. Young Farmers' Associations in Ohio, op. cit. p. 17.
28. Bruce L. Melvin and Edna N. Smith, op. cit. p. 57.
29. Walter W. Wilcox, Andrew Boss, and George Fond, *Relation of Variations in the Human Factor to Financial Returns in Farming*, University of Minnesota Experiment Station, Bulletin 288, Agricultural, 1932, pp. 8-9.
30. Walter W. Wilcox and O. G. Lloyd, *The Human Factor in the Management of Indiana Farms*, Purdue University Agricultural Experiment Station, Bulletin No. 369, 1932.

